THAT WHICH IS CLAIMED IS:

1. An apparatus for classifying poultry eggs, comprising:

an egg carrier;

a light measuring system having a light source positioned on one side of said egg carrier and a light detector positioned on the other side of said egg carrier opposite said light source; and

a switching circuit operatively associated with said light source for cycling the intensity of said light source at a frequency greater than 100 cycles per second.

2. An apparatus according to claim 1, wherein said light source is an infrared light source.

3. An apparatus according to claim 1, wherein said egg carrier is configured to carry said eggs between said light source and said light detector in noncontacting relationship therewith.

4. An apparatus according to claim 1, further comprising an aperture positioned in front of said light source.

5. An apparatus according to claim 1, further comprising a lens system positioned in front of said light source.

6. An apparatus according to claim 1, further comprising an aperture positioned in front of said light detector.

7. An apparatus according to claim 1, further comprising a lens system positioned in front of said light detector.

8. An apparatus according to claim 1, further comprising an electronic filter operatively associated with said light detector for distinguishing light emitted from said light source from ambient light.

9. An apparatus according to claim 1, further comprising an optical filter positioned in front of said light detector for filtering ambient light.

10. An apparatus according to claim 1, further comprising a drive system operatively associated with said egg carrier, said drive system configured to pass eggs between said light source and said light detector at a rate of at least one egg per second.

11. An apparatus according to claim 1, wherein said egg carrier is configured to carry at least two rows of eggs in side-by-side relationship to one another; and wherein said apparatus comprises a plurality of said light measuring systems positioned in operative association with each of said rows of eggs.

12. An apparatus according to claim 11, wherein said switching circuit cycles adjacent ones of said light sources at a time or frequency different from one another.

13. An apparatus according to claim 11, further comprising data collection means operatively associated with said light detectors for storing data associated with said eggs,

and wherein said switching circuit is operatively associated with said data collection means so that data is collected from each of said light detectors in a cycle corresponding to the cycle of the corresponding light source.

14. A method for classifying poultry eggs, said method comprising:

(a) providing a light source and a light detector in opposite facing relation to one another;

(b) passing an egg between said light source and light detector; and

(c) switching said light source at a frequency greater than 100 cycles per second while passing said egg between said light source and said light detector; and

(d) detecting light that passes through said egg from said light source with said light detector.

15. A method according to claim 14 wherein said egg is classified as either fertile or infertile.

16. A method according to claim 14 wherein said egg is classified as either live or non-live.

17. A method according to claim 14, wherein said light source is an infrared light.

18. A method according to claim 14, wherein the egg is passed between said light source and said light detector without making contact therewith.

19. A method according to claim 14, further comprising the step of electronically filtering the signal detected by said light detector to distinguish light emitted from said light source from ambient light.

20. A method according to claim 14, wherein said steps (a) through (c) are repeated at a rate of at least one egg per second.

21. A method for classifying poultry eggs, said method comprising:

(a) providing a light source and a light detector in opposite facing relation to one another;

(b) passing an egg between said light source and light detector; and

(c) switching said light source at a frequency greater than 100 cycles per second while passing said egg between said light source and said light detector; and

(d) detecting light that passes through said egg from said light source with said light detector.

22. A method according to claim 21 wherein said egg is classified as either fertile or infertile.

23. A method according to claim 21 wherein said egg is classified as either live or non-live.

24. A method according to claim 21, wherein each of said light sources is an infrared light source.

25. A method according to claim 21, wherein said eggs are passed between said light sources and said light detectors without making contact therewith.

26. A method according to claim 21, further comprising the step of electronically filtering the signal detected by each of said light detectors to distinguish light emitted from said light source from ambient light.

27. A method according to claim 21, wherein said steps (b) through (e) are repeated at a rate of at least one egg per second.

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28. An automated apparatus for selectively injecting avian eggs, comprising:

classifier means for classifying an egg as suitable for injection or as not suitable for injection;

signalling means for generating a classification signal that indicates whether an egg is suitable for injection or not suitable for injection, said signalling means operatively connected with said classifier means;

conveying means for conveying a plurality of eggs in a fixed relationship past said classifier means;

control means for receiving said classifying signal from said signalling means and selectively generating an injection signal based on said classification signal;

injection means operatively connected to said control means.

2 ~~29~~. An apparatus according to claim 1 ~~28~~, wherein said classifier means is capable of distinguishing between fertile eggs and infertile eggs.

3 ~~30~~. An apparatus according to claim 1 ~~28~~, wherein said classifier means is capable of distinguishing between live eggs and non-live eggs.

pub a21 31. An apparatus according to claim 28 wherein:

said conveying means comprises an egg carrier; and

wherein said classifier means comprises:

a light measuring system having a light source positioned on one side of said egg carrier and a light detector positioned on the other side of said egg carrier opposite said light source; and

a switching circuit operatively associated with said light source for cycling the intensity of said light source at a frequency greater than 100 cycles per second.

5 ~~32~~. An apparatus according to claim 4 ~~31~~, wherein said light source is an infrared light source.

6 ~~33~~. An apparatus according to claim 4 ~~31~~, wherein said egg carrier is configured to carry said eggs between said light source and said light detector in noncontacting relationship therewith.

7 ~~34~~. An apparatus according to claim 4 ~~31~~, further comprising an aperture positioned in front of said light source.

8 4
~~35~~. An apparatus according to claim ~~31~~, further comprising a lens system positioned in front of said light source.

9 4
~~36~~. An apparatus according to claim ~~31~~, further comprising an aperture positioned in front of said light detector.

10 4
~~37~~. An apparatus according to claim ~~31~~, further comprising a lens system positioned in front of said light detector.

11 4
~~38~~. An apparatus according to claim ~~31~~, further comprising an electronic filter operatively associated with said light detector for distinguishing light emitted from said light source from ambient light.

12 4
~~39~~. An apparatus according to claim ~~31~~, further comprising an optical filter positioned in front of said light detector for filtering ambient light.

13 4
~~40~~. An apparatus according to claim ~~31~~, further comprising a drive system operatively associated with said egg carrier, said drive system configured to pass eggs between said light source and said light detector at a rate of at least one egg per second.

14 4
~~41~~. An apparatus according to claim ~~31~~, wherein said egg carrier is configured to carry at least two rows of eggs in side-by-side relationship to one another; and wherein said apparatus comprises a plurality of said light measuring systems positioned in operative association with each of said rows of eggs.

15 14
~~42~~. An apparatus according to claim ~~41~~, wherein said switching circuit cycles adjacent ones of said light sources at a time or frequency different from one another.

43. An apparatus according to claim 41, further comprising data collection means operatively associated with said light detectors for storing data associated with said eggs,

and wherein said switching circuit is operatively associated with said data collection means so that data is collected from each of said light detectors in a cycle corresponding to the cycle of the corresponding light source.

~~44.~~ A method for selectively injecting, in a plurality of avian eggs, eggs suitable for injection, said method comprising:

(a) conveying a plurality of eggs in a fixed relationship past classifier means;

(b) generating a classification signal for each of said plurality of eggs indicating whether said each egg is suitable for injection;

(c) transmitting said classification signal to control means;

(d) generating a selective injection signal from said control means based on said classification signal;

(e) transmitting said selective injection signal to injection means for injecting a substance into avian eggs, so that only those eggs indicated by said classification signal as suitable are injected with said substance.

~~45.~~ 18 An apparatus according to claim ~~44~~ 17, wherein said classifier means is capable of distinguishing between fertile eggs and infertile eggs.

~~46.~~ 19 An apparatus according to claim ~~44~~ 17, wherein said classifier means is capable of distinguishing between live eggs and non-live eggs.

47. A method according to claim 44, wherein step (b) comprises:

(i) providing a light source and a light detector in opposite facing relation to one another and configured so that at least one of said plurality of eggs conveyed by said conveying means passes between said light source and said light detector;

(ii) providing switching means for switching said light source at a frequency greater than 100 cycles per second; and

(iii) detecting light that passes through said egg from said light source with said light detector.

22 ~~48~~. A method according to claim 21 ~~47~~, wherein said light source is an infrared light source.

23 ~~49~~. A method according to claim 21 ~~47~~, wherein the egg is passed between said light source and said light detector without making contact therewith.

24 ~~50~~. A method according to claim 21 ~~47~~, further comprising the step of electronically filtering the signal detected by said light detector to distinguish light emitted from said light source from ambient light.

20 ~~51~~. A method according to claim 17 ~~44~~, wherein said steps (a) through (c) are repeated at a rate of at least one egg per second.